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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/003,852

12/06/2001

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7465

7590

02/05/2004

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EXAMINER

PAIK, SANG YEOP

ART UNIT

PAPER NUMBER

3742

DATE MAILED: 02/05/2004

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/003,852

Applicant(s)

SHERWOOD ET AL.

Examiner

Sang Y Paik

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2-4 and 8 is/are allowed.
- 6) ☒ Claim(s) 1,5-7 and 9-53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Response to Amendment

1. The applicant filed the amendment under 37 CFR 1.116. However, there was no final office action made in this application. Thus, the amendment is entered in the application under 37 CFR 1.111, and claims 1-53 are pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 5-7, 17-20, 23, 25, 26, 28-32, 35, 37-39, 42, 44-47 and 49-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi (US 6,155,268) in view of Eastman (US 4,212,347).

Takeuchi discloses the aerosol generator claimed including the laminate body having the fluid passage, the electric resistance heater plates along the fluid passage, a fluid supply, the laminated layers being sealed with the material such as a plastic film or a metal, the capillary size having the width of 0.01 mm to 2.0 mm (also see Figures 10 and 11; and column 9, line 35-column 10, line 27). However, Takeuchi does not show the opposed layers of the laminated body are bonded together.

Eastman shows a laminated body having a fluid passage therein whose opposed layers are bonded together. In view of Eastman, it would have been obvious to one of ordinary skill in

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the art to adapt Takeuchi with the laminated body whose opposed layers are bonded together to improve a tight seal between the laminated body.

With respect to claims 5, 6 and 49-53, it would have been obvious to one of ordinary skill in the art to bond the laminated layer by the means of adhesive or metallurgy since Eastman leaves it to one of ordinary skill in the art to use any conventional means to bond the laminated layers.

With respect to claims 25, 37 and 44, Takeuchi shows the heater plates having its entire surface less than the size of the laminate. While Takeuchi does not show that the width of the heater is not less than the width of the laminate, it would have been obvious to one of ordinary skill in the art to provide the width of the heater smaller than the width of the laminate to control the heating capacity of the heater to meet the desired heating rate or heating surface as one would desire to achieve.

4. Claims 9, 21, 22, 24, 33, 34, 36, 40, 41 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi in view of Eastman as applied to claims 1, 5-7, 17-20, 23, 25, 26, 28-32, 35, 37-39, 42, 44-47 and 49-53 above, and further in view of Howell et al (US 5,743,251).

Takeuchi in view of Eastman Takeuchi discloses the aerosol generator claimed except the heater comprising a layer of platinum.

Howell et al shows an aerosol generator having a ceramic capillary tube with a layer of platinum as the heater, and it teaches that the platinum layer does not experience oxidation degradation or other corrosion. In view of Howell et al, it would have been obvious to one of ordinary skill in the art to adapt Takeuchi, as modified by Eastman, with the laminated body

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made of ceramic with a heater layer made of platinum to provide good resistance to oxidation degradation and corrosion to improve the life of the aerosol generator.

Howell et al further disclose that the aerosol generator is provided with a valve and a pump having a piston therein. It would have been obvious to one of ordinary skill in the art to further adapt Takeuchi with the valve and the pump to control amount of the fluid transfer from the source container to the fluid passage.

5. Claims 10-16, 27 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi in view of Eastman Takeuchi as applied to claims 1, 5-7, 17-20, 23, 25, 26, 28-32, 35, 37-39, 42, 44-47 and 49-53 above, and further in view of Obeshaw (US 6,586,110).

Takeuchi in view of Eastman Takeuchi disclose the aerosol generator claimed except having a mandrel between the opposed layers of the laminate body.

Obeshaw shows a method of making a contoured metal structure having a removable mandrel disposed between the laminate body to form a desired shape or defining the space. Figure 3 further shows a variety of shapes and figures one can make.

In view of Obeshaw, it would have been obvious to one of ordinary skill in the art to adapt Takeuchi, as modified by Eastman Takeuchi, with a removable mandrel to form a desired shapes and forms to meet the need of the user.

With respect to claims 14 and 16, it would have been obvious to one of ordinary skill in the art to provide the electrical contacts to the heaters to supply the power and to generate the necessary heat.

Allowable Subject Matter

6. Claims 2, 3, 4 and 8 are allowed over the prior art of record.

Response to Arguments

7. Applicant's arguments filed 11/ have been fully considered but they are not persuasive.

The applicant argues that the applied prior art Takeuchi and Eastman references are non-analogous because the device of Eastman is used in an environment, i.e., an outer space, different from that of Takeuchi, i.e., aerosol generators. While the devices in each of the prior art are used in different environments, their devices are designed for same purpose to function as the means to transfer the liquid in a capillary action/force. Such use of the capillary action/force is reasonably pertinent to the problem which the invention was concerned. Thus, the applicant's argument that they are non-analogous is not deemed persuasive.

Furthermore, the applicant asserts that Takeuchi does not disclose or suggest that its device would be operable if the plates were not parallel and not spaced apart by a constant gap across their entire widths. The structure of Takeuchi is designed to produce a capillary force to transfer the liquid and it's noted Takeuchi's structure is not only means to produce such capillary action as evidenced by Eastman. Furthermore, the applicant's such assertion is not supported in Takeuchi. Takeuchi discloses that its invention is not limited to the specific details and various modifications may be made. This clearly shows that forms other than explicitly disclosed by Takeuchi can perform its intended capillary function.

With respect the recitation of that the layers are bonded together by an adhesive or that they are metallurgically bonded, the Examiner takes position that such methods are conventional in the art for bonding procedure as evidenced by Jha et al (US 5,516,383) which metallurgical bonding and Abrams (US 5,908,527) for adhesive bonding.

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With respect claim 25, since various sizes and shapes of a heater can generate various heating capacity, such would have obvious to one of ordinary skill in the art having an ordinary skill in the electrical heating art. With respect to claims 26 and 28, Eastman clearly shows the bonded portion separated by the fluid passage. Claim 32 is clearly taught by Takeuchi which shows the width of the fluid passage being less than the width of the opposed layers. With respect to claim 39, the bonded layers would inherently be closer together than non-bonded layers which define the fluid passage. With respect to claim 46, Eastman shows depressed opposed surfaces defining the fluid passage. With respect to claim 47, the bonding is clearly shown by Eastman. With respect to claim 21, Howell shows a capillary tube with using a pump and a valve. This clearly teaches that such additional means can be provided to enhance the fluid transfer.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Y Paik whose telephone number is 703-308-1147. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. P. S.

Sang Y Paik
Primary Examiner
Art Unit 3742

syp